IN THE CLAIMS:

Please amend the claims as follows:

1. (Previously Presented) A method for sensing attributes of reflected signals in an optical sensing system comprising an interrogator coupled to a Bragg grating sensor by an optical cable, the method comprising:

producing a first optical signal with a light source, the first optical signal having a predefined wavelength range;

coupling the first optical signal to an optical cable;

receiving a first reflected signal of the first optical signal, the first reflected signal from a Bragg grating sensor within the optical cable;

resolving an attribute of the first reflected signal indicative of an environmental condition at the Bragg grating sensor;

producing a second optical signal with the light source, the second optical signal at a predefined wavelength;

coupling the second optical signal to the optical cable;

receiving a second reflected signal of the second optical signal, the second reflected signal caused by Brillouin backscattering within the optical cable; and

resolving a shift in attribute between the second optical signal and second reflected signal that is indicative of an environmental condition along the optical cable.

2. (Original) The method of claim 1, wherein the step of receiving the second reflected signal comprises:

conditioning the signal; and

analyzing the conditioned signal with a frequency detector.

3. (Original) The method of claim 1, wherein the step of producing the first optical signal comprises:

tuning a laser through a range of output wavelengths.

4. (Original) The method of claim 2, wherein the step of conditioning the reflected signal comprises:

passing the second reflected signal through a Rayleigh filter.

5. (Previously Presented) The method of claim 2, wherein the step of resolving the shift comprises:

determining a difference in frequencies between the second optical signal and the second reflected signal.

6. (Original) The method of claim 1, wherein the step of receiving the first reflected signal comprises:

determining a reflection spectrum of the Bragg grating sensor.

7. (Original) The method of claim 6, wherein the step of producing the second optical signal comprises:

generating a signal at a wavelength outside the reflection spectrum of the Bragg grating sensor.

8. (Original) The method of claim 7 further comprising:

pulsing the second optical signal.

9. (Original) The method of claim 1 further comprising

setting an optical switch to a first state that diverts the first reflected signal along a first return path to a wavemeter; and

setting the optical switch to a second state that diverts the second reflected signal along a second return path to a frequency detector.

10. (Previously Presented) The method of claim 1, wherein the Bragg grating sensor comprises a large diameter optical waveguide.

11. (Previously Presented) The method of claim 1, wherein the Bragg grating sensor comprises an optical fiber.

12. (Previously Presented) Apparatus for sensing at least one attribute of reflected optical signals, comprising:

an optical signal detection circuit adapted to receive optical signal propagating through an optical fiber, comprising:

a first sensing branch for detecting a metric indicative of environmental conditions at a Bragg grating;

a second sensing branch for sensing a metric indicative of environmental conditions along the optical fiber from backscattered signals; and

a controller coupled to the optical signal detection circuit for processing information provided by both the first sensing branch and the second sensing branch.

13. (Original) The apparatus of claim 12, wherein the optical signal detection circuit further comprises:

a wavemeter coupled to the first sensing branch; and

a frequency detector coupled to the second sensing branch.

14. (Original) The apparatus of claim 13, wherein the second sensing branch further comprises:

a signal conditioner.

15. (Original) The apparatus of claim 12, wherein the signal conditioner comprises at least one of a convolution circuit and a Rayleigh filter.

16. (Original) The apparatus of claim 12 further comprising:

a light source suitable for producing optical signals tunable over a range of wavelengths, the light source adapted to generate a signal for propagating through and having sufficient intensity to produce Brillouin scattering of the signal in the optical fiber; and

a signal a pulse module adapted to selectively pulse output signals from the light source.

17. (Original) The apparatus of claim 12 further comprising:

an optical cable having at least one optical fiber disposed therein, the optical fiber coupled to the light source and the signal detection circuit; and

a Bragg grating sensor coupled to the optical fiber.

18. (Original) The apparatus of claim 12, wherein the detection circuit further comprises:

a laser coupled thereto and tunable through a predetermined range of output wavelengths.

19. (Original) The apparatus of claim 12, wherein the Bragg grating sensor comprises a large diameter optical waveguide.

20. (Original) The apparatus of claim 12, wherein the Bragg grating sensor comprises an optical fiber.

21. (Previously Presented) Apparatus for sensing at least one attribute of returning optical signals, comprising:

an optical fiber;

a Bragg grating sensor coupled to the optical fiber;

a light source coupled to the optical fiber and suitable for producing optical signals tunable over a range of wavelengths, the light source adapted to generate a signal having sufficient intensity to produce Brillouin scattering of the signal into the optical fiber;

a pulse module adapted to selectively pulse output signals from the light source; and

an optical signal detection circuit coupled to the optical fiber and comprising:

a first sensing branch;

a second sensing branch having a Rayleigh filter;

a wavemeter coupled to the first sensing branch for resolving a wavelength of signals reflected from the sensor;

a frequency detector coupled to the second sensing branch for resolving a difference in frequency between the pulsed signal and a backscattered signal; and

an optical switch for diverting signals returning from the optical fiber to the optical signal detection circuit selectively between the first and second branches.

22. (Original) The apparatus of claim 21, wherein the light source is a tunable laser.

23. (Original) The apparatus of claim 21, wherein the Bragg grating sensor comprises a large diameter optical waveguide.

24. (Original) The apparatus of claim 21, wherein the Bragg grating sensor comprises an optical fiber.

25. (Currently Amended) An apparatus for detecting Bragg grating reflected and backscattered signals, comprising:

a laser tunable over a predefined wavelength range;

an optical cable coupled to the laser;

a Bragg grating sensor coupled to the optical cable;

a point sensing circuit coupled to the optical cable for resolving a wavelength of signals reflected from the Bragg grating sensor; and

a distributed sensing circuit coupled to the optical cable for resolving a difference in frequency between a pulsed signal provided by the laser and a backscattered signal, wherein the point sensing circuit and the distributed sensing circuit are disposed within a single interrogator.

26. (Original) The apparatus of claim 25, wherein the Bragg grating sensor comprises a large diameter optical waveguide.

27. (Original) The apparatus of claim 25, wherein the Bragg grating sensor comprises an optical fiber.